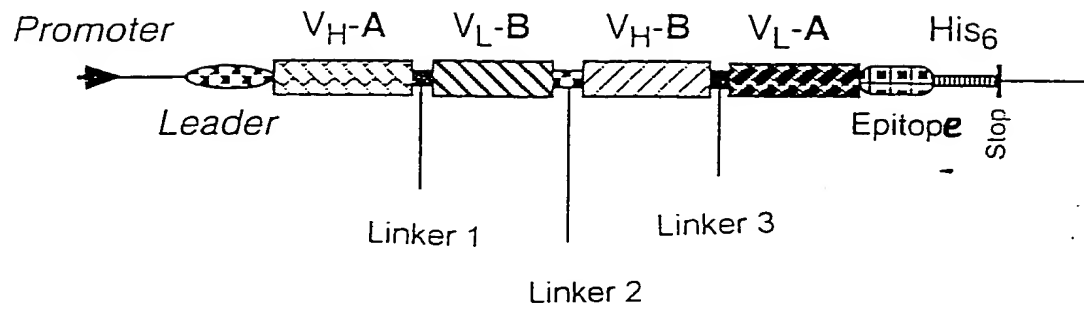
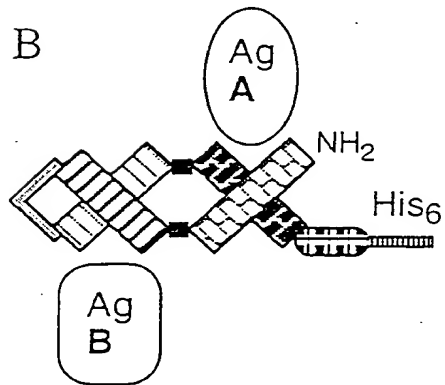


A



B



C

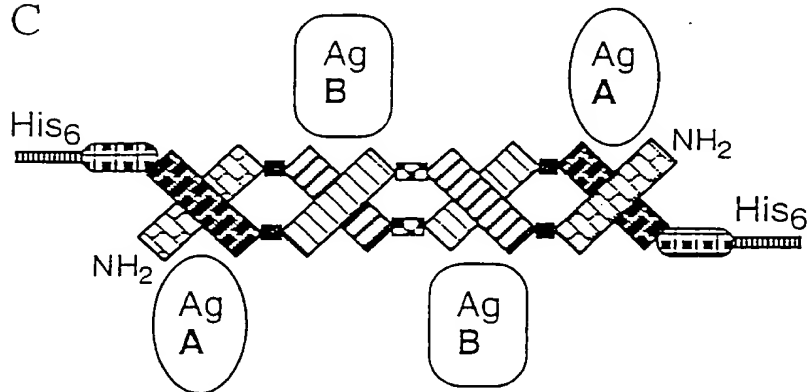


FIGURE 1

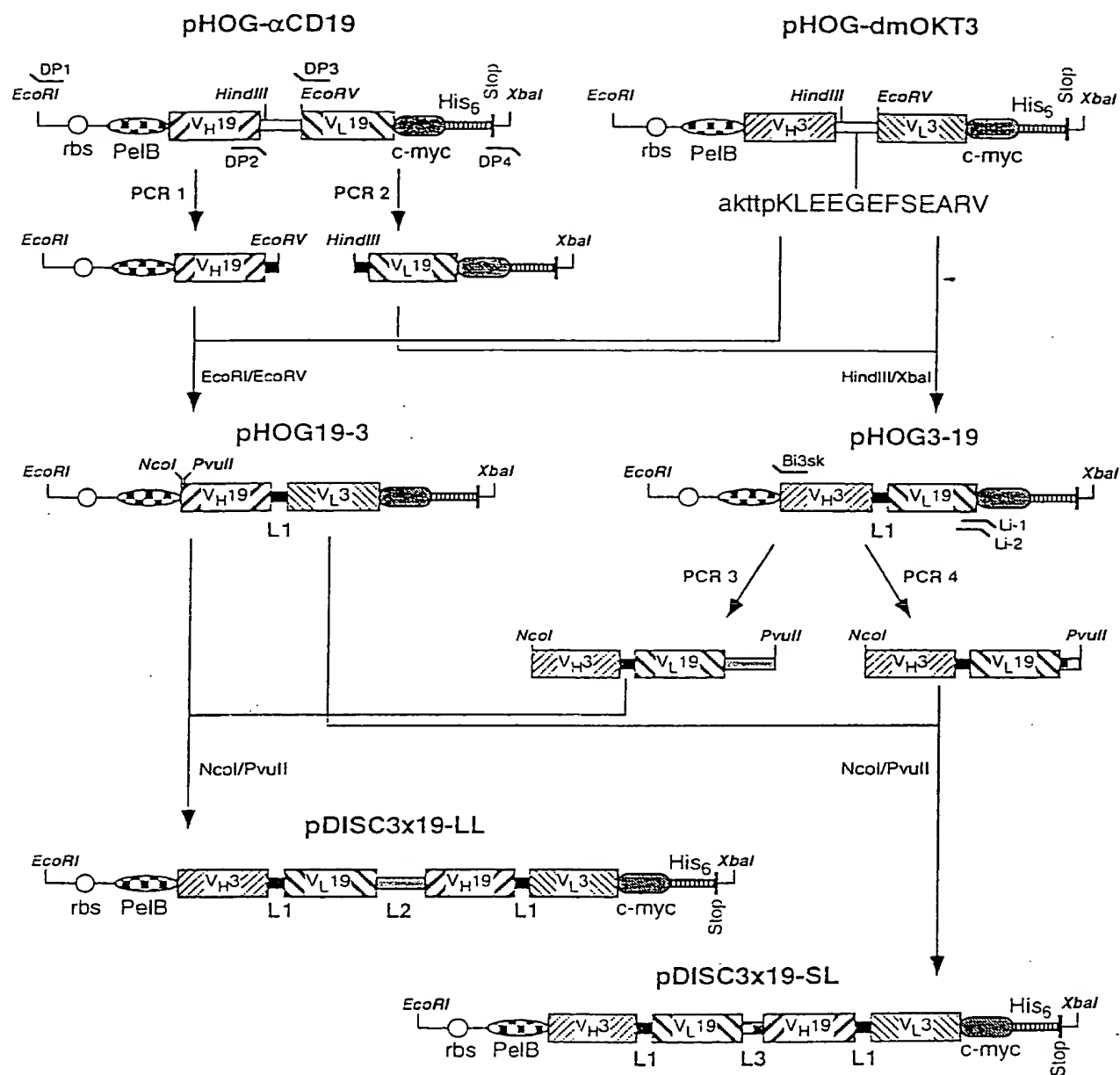


FIGURE 2

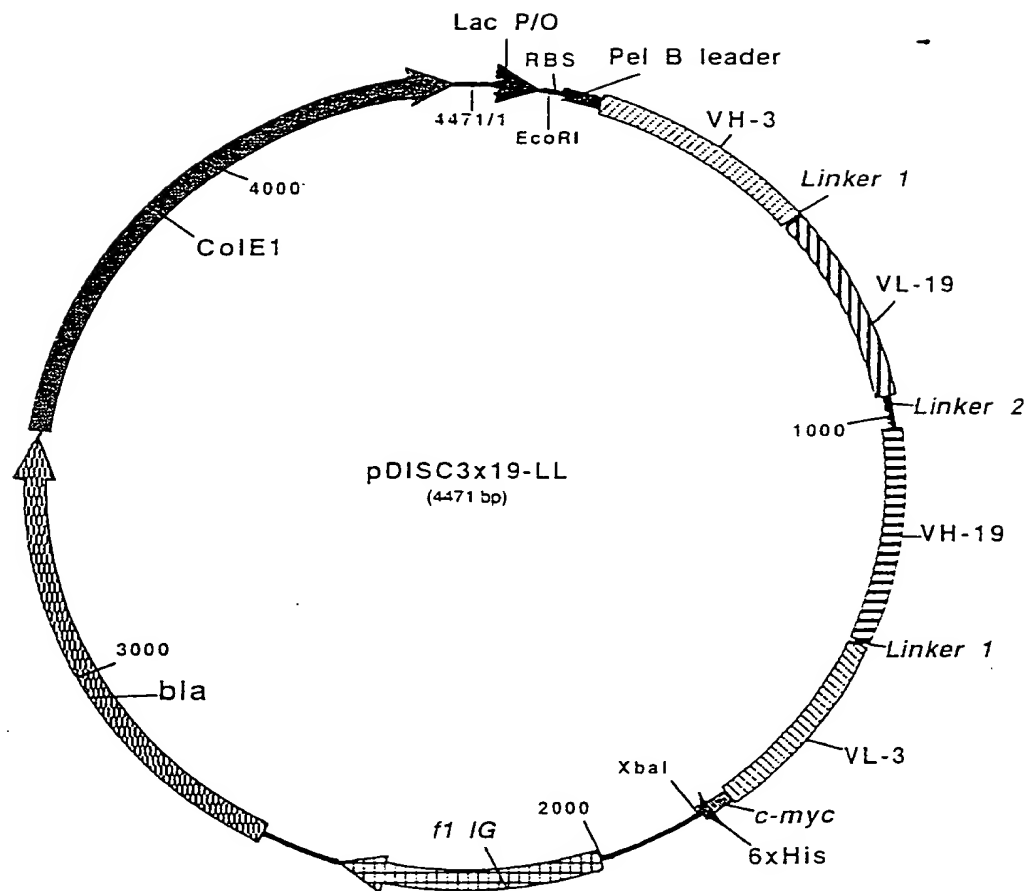


FIGURE 3

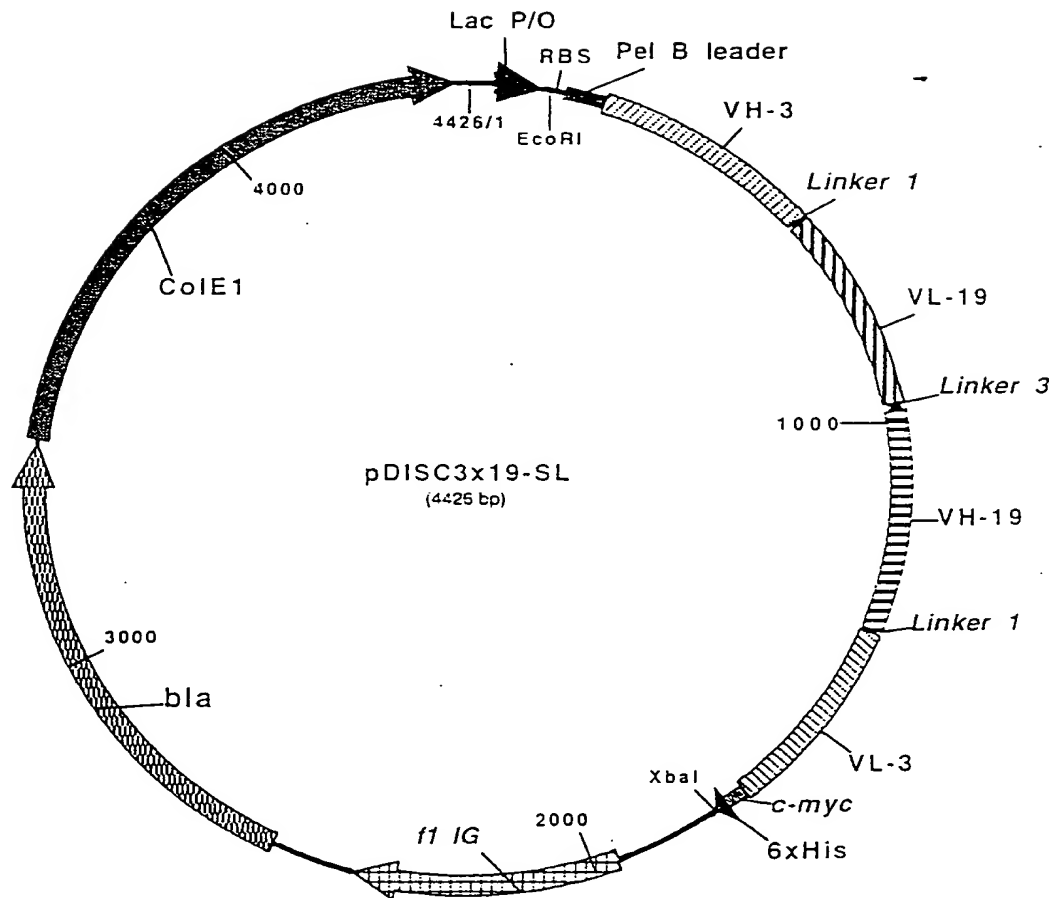


FIGURE 4

FIGURE 5

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EcoRI RBS PelB leader NcoI

1 GAATTCTTTAAAGAGGGAATTTACCATGAAATACCTATTGCTTACGGGACGGCGTGGCTTGGCTGCTGCTGGCAAGCTCAGCCGGCCATGG

1) M K Y L L P T A A A G L L L L A A Q P A M

Frame-H1 VH anti-CD3

92 CGCAGGTGCAACTGCAGCAGTCTCGGGCTGAAGTGGCAAGACCTGGGGCTCAGTGAAGATGTCTGCAAGGCTTCTGGCTACACCTTTAC

22) A Q V Q L Q Q S G A E L A R P G A S V K M S C K A S G Y T F T

CDR-H1 Frame-H2 CDR-H2

183 TAGGTACACGATGCACCTGGGTAAACAGAGGCTGGACAGGGTCTGGATGGATGGATACATTAATCCCTAGCCGTGGTTATAC

52) R Y T M H W V K Q R P G Q G L E W I G Y I N P S R G Y T

Frame-H3

257 TAATTACAATCAGAAGTTCAAGGACAGGGCCACATTTGACTACAGACAATCTCCAGCACAGCCTACATGCAACTGAGCAGCCTGAC

80) N Y N Q K F K D X A T L T T D K S S S T A Y M Q L S S L T

CDR-H3 Frame-H4

354 ATCTGAGGACTCTGCACTCTATTACTCTGCAAGATATTATGATGATCATTACAGCCTTGACTACTGGGGCCAGGCAACCTCTCTCA

109) S E D S A V Y Y C A R Y Y D D H Y S L D Y W G Q G T T L

CH1 Linker 1 Frame-L1 VL anti-CD19

440 CAGTCTCTCAGCCCAACCAAGCTTGGCGGTGATATCTTCTCAGCCCAACTCCAGCTTCTTTGGCTGTGTCTTAGGGCAGA

133) T V S S A K T T F K L G G D I L L T Q T P A S L A V S L S Q

CDR-L1 Frame-L2

530 GGGCCACCATCTCTGCAAGGCCAGCCAAAGTGTGATTATGATGGTGATAGTTATTTGAACTGGTACACAGATTCCAGGAC

168) R A T I S C K A S Q S V D Y D G D S Y L N W Y Q Q I P G

CDR-L2 Frame-L3

614 AGCCACCCCAACTCTCTATCTATGATGCAATCTAGTTTCTGGGATCCCACTCCAGGTTTAGTGGCAGTGGGTCTGGGACAGACTT

196) Q P P K L L I Y D A S N L V S G I P P R F S G S G S G T D F

CDR-L3 Frame-L4

702 CACCCCTAACATCCATCTCTGTGGAGAGGTGGATGCTGCAACCTATCACTGTGAGCAAAGTACTGAGGATCCCTGGACCTTCGGTGA

225) T L N I H P V E K V D A T Y H C Q Q S T E D P W T F G G

C kappa NotI Linker 3 PvuII Frame-H1

790 GGCACCAAGCTGGAATCAAAAGGGTGAATGCGCGCGCTGGTGGCCCAAGGTCGCAAGGTGCAAGTGCAGCAGTCTGGGGCTGAGCT

255) G T K L E I K R A D A A A A G G P G S Q V Q L Q Q S G A E L

VH anti-CD19 CDR-H1 Frame-H2

879 GGTGAGGCTGGGTCTCAGTGAAGATTCTCTGCAAGGCTTCTGGCTATGCATTGAGTACTGCTACTGGATGAAGTGGGTGAAGCAGAGGC

284) V R P G S S V K I S C K A S G Y A F S S Y W M N W V K Q R

CDR-H2

968 CTGGACAGGCTCTGAGTGGATTGCAAGATTTGGGCTGGAGATGGTGATACTAACTACAATGGAAAAGTTCAAGGGTAAAGCC

314) P G Q G L E W I G Q I W P G D G D T N Y N G K F K G K A

Frame-H3

1051 ACTCTGACTGCAGACGAATCTCTCCAGCACAGCCTACATGCAACTCAGCAGCCTAGCATCTGAGGACTCTGCGGTCTATTCTGTGCAAGAC

342) T L T A D E S S S T A Y M Q L S S L A S E D S A V Y F C A R

CDR-H3 Frame-H4 CH1

1142 GGGAGACTACGACGGTAGGCCGTATTACTATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCTCAAGTCAAAA

372) R E T T T V G R Y Y Y A M D Y W G Q G T S V T V S S A K

Linker 1 Frame-L1 VL anti-CD3

1226 CAACACCAAGCTTGGCGGTGATATCTGCTCACTCACTCTCCAGCAATCATGTCTGCATCTCCAGGGGAGAGGTCACTGACTGCA

400) T T P K L G G D I V L T Q S P A I M S A S P G E K V T M T C

CDR-L1 Frame-L2 CDR-L2

1316 GTGCCAGCTCAAGTGTAAGTTACATGAAGTGTACAGCAAGTCAGGCACCTCCCCCAAAAGATGGATTATGACACATCCAA

430) S A S S S V S Y M N W Y Q Q K S G T S P K R W I Y D T S K

Frame-L3

1401 ACTGGCTTCTGAGTCCCTGCTCACTTCAGGGGAGTGGGTCTGGGACCTCTTACTCTCTCAATCAGGGCATGGAGGCTGAAGATGC

458) L A S G V P A H F R G S G S G T S Y S L T I S G M E A E D A

CDR-L3 Frame-L4 C kappa

1491 TGCCACTTATTACTGCCAGCAGTGGAGTAGTAACCCATTTCAGCTTCGGCTCGGGGACAAAGTTGGAATAAACCAGGGCTGATCTGC

488) A T Y Y C Q Q W S S N P F T F G S G T K L E I N R A D T A

c-myc epitope His6 tail XbaI

1578 ACCAATCGGATCGAACAAGCTGATCTCAGAAGAAAGACCTAAACTCAGTCACCATCAGCATCAATCTAGA

517) P T G S E Q K L I S E E D L N S H H H H H H H

FIGURE 6

941 ATGAGATTTTCCTTCAATTTTACTGCTGTTTTATTTCGCAGCATCCTCCGCATTAGCTGCTCCAGTCAACACTAC  
1▶ M R F P S I F T A V L F A A S S A L A A P V N T T

alpha-factor signal

1015 AACAGAAGATGAAACCGGCACAAATTCCGGCTGAAGCTGTCATCGGTTACTCAGATTTAGAAGGGGATTTCGATG  
25▶ T E D E T A Q I P A E A V I G Y S D L E G D F D

1089 TTGCTGTTTTGCCATTTTCCAACAGCACAAATAACGGGTTATTGTTTTATAAATACTACTATTGCCAGCATTGCT  
50▶ V A V L P F S N S T N N G L L F I N T T I A S I A

XhoI EcoRI

1163 GCTAAGAAGAAGGGGTATCTCTCGAGAAAAGAGAGGCTGAAGCTGAATTCCAGGTGCAACTGCAGCAGTC  
75▶ A K E E G V S L E K R E A E A E F Q V Q L Q Q S

VH anti-CD3

1234 TGGGGCTGAACTGGCAAGACCTGGGGCCTCAGTGAAGATGTCCTGCAAGGCTTCT  
98▶ G A E L A R P G A S V K M S C K A S

FIGURE 7

941 ATGAGATTTTCCTTCAATTTTTACTGCTGTTTTATTTCGCAGCATCCTCCGCATTAGCTGCTCCAGTCAACACTAC  
1 M R F P S I F T A V L F A A S S A L A A P V N T T

## alpha-factor signal

1015 AACAGAAGATGAAACGGCACAAATTCCGGCTGAAGCTGTCAATCGGTACTCAGATTTAGAAGGGGATTTCCGATG  
25 T E D E T A Q I P A E A V I G Y S D L E G D F D

## BsrDI

1089 TTGCTGTTTTGCCATTTTCCAACAGCACAAATAACGGGTTATTGTTTATAAATACTACTATTGCCAGCATTGCT  
50 V A V L P F S N S T N N G L L F I N T T I A S I A

## XhoI

## EcoRI

1163 GCTAAAGAAGAAGGGGTATCTCTCCAGAAAAAGAGAGGCTGAAGCTGAATTCATGGCGCAGGTGCAACTGCAG  
75 A K E E G V S L E K R E A E A E F M A Q V Q L Q

## VH anti-CD3

1235 CAGTCTGGGGCTGAACTGGCAAGACCTGGGGCCTCAGTGAAGATGTCCTGCAAGGCTTCT  
99 Q S G A E L A R P G A S V K M S C K A S

FIGURE 8



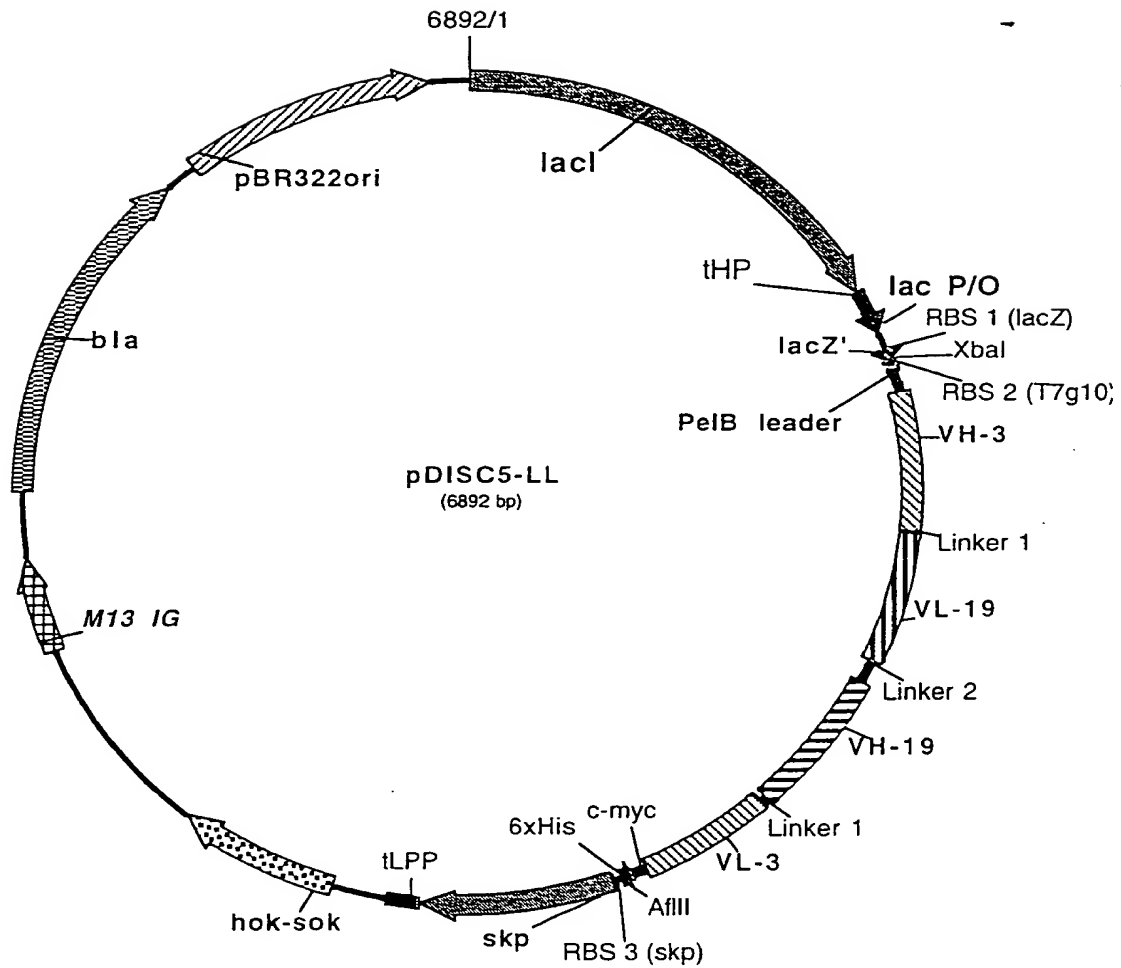


FIGURE 9

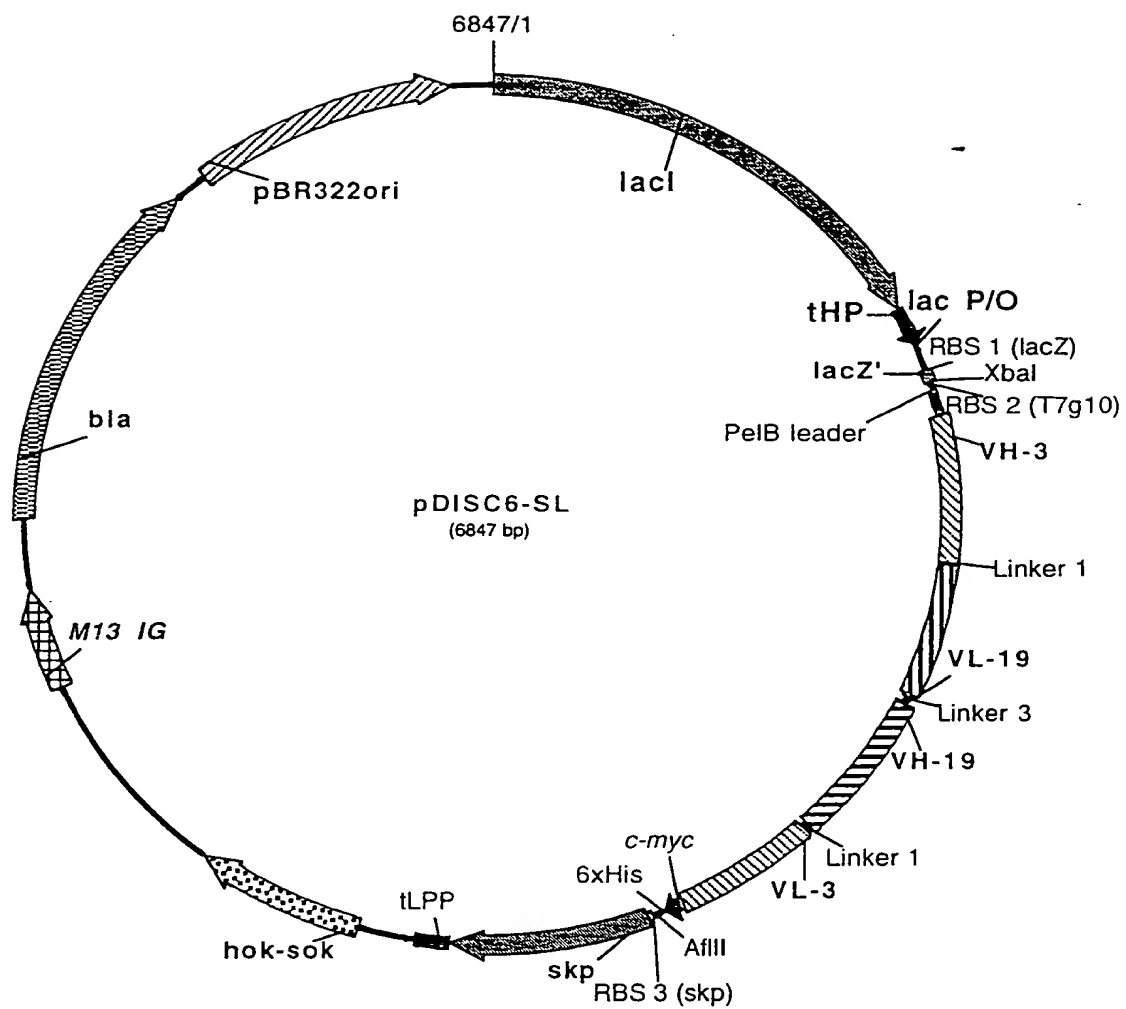


FIGURE 10